

5.66 years — and suggests that it and C/1999 J6 and C/2004 V9 may have split from each other in 1993. In addition, Marsden and Chodas have identified possible links between several Kracht comets, indicating a period of about 5 years for the group. This evidence for the short-period nature of these groups confirms what other researchers have suspected.

Australian comet hunter David Seargent noted similarities between the Marsden group and the Daytime Arietids, a meteor shower that peaks on June 8th. Japanese meteor observer Katsuhito Ohtsuka and his colleagues have further linked the Marsden and Kracht groups, Comet 96P/Machholz (whose period is 5.2 years), and the Daytime Arietids. They propose that the Marsden and Kracht groups are fragments that separated from Comet Machholz about 4,000 years ago, when that comet's perihelion distance was near its minimum. (Its orbit varies over an 8,000-year cycle.) The Quadrantid and Delta Aquarid meteor showers may also be involved.

It's possible that additional, less populous groups remain to be found. At least one related triplet (dubbed Kracht II) and another related pair of SOHO comets are known.

The Resurrection of SOHO's Comet Program

SOHO is in the ninth year of what was initially a two-year mission, having survived power problems, gyroscope failures, and antenna troubles. The mission has been extended until 2007, by which time the twin Solar Terrestrial Relations Observatory (STEREO) spacecraft should be in orbit and the Solar Dynamics Observatory close to launch.

ALL IN THE FAMILY By sifting through the orbital parameters of hundreds of SOHO comets, astronomers have found other families that are likely the remnants of larger comets shattered long ago. Kreutz, Meyer, and the proposed Kracht II groups are all distinct. But Marsden and Kracht I comets may be related to Comet 96P/Machholz, which has a period of 5.2 years. The orbits of most SOHO comets are significantly uncertain because such sungrazers are usually seen for only a couple of days at most with an instrument that wasn't intended to provide high-precision astrometry.

S&T: GREGG DINDERMAN (2)



TERRY LOVEJOY

BEST OF CLASS Few of SOHO's comet finds ever become bright enough for amateur astronomers to observe. A notable exception was C/1998 J1 (SOHO 49), a sporadic comet not belonging to any known group, which brightened to 4th magnitude for Southern Hemisphere observers.

SOHO's comet program has itself proven resilient.

In late 2002, staff attrition led to stagnation in handling SOHO data, and by the following year, when Derek Hammer left, the project no longer employed a person to process comet claims or handle astrometry. Many of the regular hunters, believing that their discoveries might never be confirmed, stopped searching.

Fortunately, though, word of the demise of SOHO's comet program proved premature. In late 2003, Karl Battams was hired by the US Naval Research Laboratory, which designed the LASCO coronagraphs, to confirm and measure SOHO comets, among other responsibilities. Catherine

McGleam (University of Maryland) collaborated with him on astrometry, and within a few months the backlogs in both comet claims and astrometry were eliminated.

Thanks to the tireless efforts of amateurs like Lovejoy, Oates, Meyer, and Kracht, SOHO has helped researchers to understand not only the history and dynamics of the Kreutz system but also the behavior of comets under extreme conditions and the evolution and disintegration of comets in general. The prodigious rate of SOHO's comet discoveries continues. You can check the current tally at <http://ares.nrl.navy.mil/sungrazer>. Barring further crisis — mechanical or fiscal — its 1,000th comet should be found in just a few months. *

TONY HOFFMAN discovered his first SOHO comet in February 2002 from his home in New York City. He has found 48 others, which he describes on his Web site (<http://home.earthlink.net/~tonyhoffman>). BRIAN MARSDEN is director of the International Astronomical Union's Minor Planet Center in Cambridge, Massachusetts, and computed almost all the orbits of SOHO comets.

The authors thank Zdenek Sekanina for his assistance in preparing this article.

